

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1.-16. (canceled)

17. (new) A hybridization assay for at least one of a multiplicity of nucleic acid sequences in an analyte comprising the steps of:

- (a) contacting said analyte with a mixture of encoded microcarriers having immobilized on their surfaces
 - (i) a capture probe, and
 - (ii) a coding scheme comprising a plurality of signaling hairpins comprising quenched, fluorophore-labeled hairpin molecules each comprising an interacting affinity pair separated by a linking moiety, one member of said affinity pair having bound thereto at least one quenched fluorophore, wherein interaction of the affinity pair is disruptable to unquench said at least one fluorophore by a physical or chemical change in a condition of its environment, wherein the disruption of the interaction of at least one affinity pair occurs at a first level of said condition and the disruption of the interaction of at least another affinity pair occurs at a second level of said condition, and wherein said disruptions are optically differentiable, and wherein the coding scheme for identifying individual microcarriers in said mixture comprises a combination of multiple spectrally differentiable

fluorophores and multiple affinity pairs disruptable at detectably different levels of said condition;

- (b) forming a distributed array of said microcarriers;
- (c) determining which microcarriers have capture probes hybridized to said at least one nucleic acid sequence of said analyte; and
- (d) optically decoding the microcarriers having hybridized capture probes to identify said at least one nucleic acid sequence.

18. (new) The assay according to claim 17, wherein said interacting affinity pair comprises complementary oligonucleotide sequences hybridized to one another.

19. (new) The assay according to claim 18 wherein said mixture of signaling hairpins includes at least three affinity pairs.

20. (new) The assay according to claim 18 wherein said mixture of signaling hairpins includes from three to eight affinity pairs.

21. (new) The assay according to claim 18 wherein steps (c) and (d) include decoding all microcarriers.

22. (new) The assay according to claim 18, wherein said linking moiety comprises an oligonucleotide sequence.

23. (new) The assay according to claim 18, wherein the step of decoding includes disrupting the hybridized affinity pairs by increasing temperature.

24. (new) The assay according to claim 22, wherein forming the distributed array comprises immobilizing individual microcarriers at the ends of fibers in a fiber-optic bundle.

25. (new) The assay according to claim 18, wherein steps (c) and (d) include flow cytometry.
26. (new) The assay according to claim 18, wherein a quencher is attached to the complementary oligonucleotide sequence not bearing the at least one fluorophore.
27. (new) The assay according to claim 18, wherein step (a) precedes step (b).
28. (new) The assay according to claim 18, wherein step (b) precedes step (a).
29. (new) The assay according to claim 28, wherein said distributed array is a planar array.
30. (new) The assay according to claim 17, wherein the step of forming a distributed array comprises immobilizing individual microcarriers at the ends of fibers in fiber-optic bundles.
31. (new) The assay according to claim 17, wherein step (a) precedes step (b).
32. (new) The assay according to claim 17, wherein step (d) includes disrupting said affinity pairs by increasing temperature.
33. (new) The assay according to claim 17, wherein step (d) includes disrupting said affinity pairs by adding a denaturant.
34. (new) The assay according to claim 17, wherein steps (c) and (d) include flow cytometry.
35. (new) The assay according to claim 17, wherein said distributed array is a planar array.
36. (new) The assay according to claim 17, wherein said distributed array is a linear array.

Applicant : Fred R. Kramer, et al.
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37. (new) The assay according to claim 17, wherein said capture probe is a molecular beacon probe.